

CLAIMS

What is claimed is:

1. An apparatus to provide user input/output functionality, said apparatus comprising a portable user input/output unit, said input/output unit including a selectable docking port such that said input/output unit is capable of mechanically docking and electronically interfacing to at least two differing portable off-the-shelf PDA's, one at a time, to provide enhanced input/output functionality, and said input/output unit providing at least one standalone input/output function.
2. The apparatus of claim 1 wherein said user input/output unit comprises a hand-held housing unit that includes a keypad for data entry and control.
3. The apparatus of claim 1 wherein said user input/output unit comprises a hand-held housing unit that includes an auxiliary display.
4. The apparatus of claim 1, wherein said input/output unit comprises at least one component of the group consisting of a microprocessor, a trigger switch, a scanner module, a communications transceiver, a PDA battery charging circuit, an auxiliary battery, a power supply, an auxiliary battery charging circuit, a wireless communications module, an antenna, at least one external connector, a heating element, an indicator, an audio amplifier circuit, an audio transducer.
5. The apparatus of claim 4, wherein said wireless communications module comprises at least one of a local area network (LAN) communication module and a wide area network (WAN) communication module.
6. The apparatus of claim 4, wherein said communications transceiver and said external connector provide a standard electronic connection to a personal computer (PC) or other data-gathering terminal.

7. The apparatus of claim 4 wherein said scanner module comprises at least one of a bar code scanner module and a radio frequency identification (RFID) scanner module.
8. The apparatus of claim 1 wherein said PDA includes any standard, off-the-shelf, commercial PDA having differing dimensional characteristics and/or differing docking characteristics.
9. The apparatus of claim 2 wherein said hand-held housing unit has a reduced perimeter at said keypad to allow for a comfortable grip in one hand during use.
10. The apparatus of claim 3 wherein said auxiliary display is used when said PDA is un-docked from said hand-held housing unit.
11. The apparatus of claim 1 wherein said user input/output unit comprises a small, low-profile device to facilitate grasping with one hand.
12. The apparatus of claim 2 wherein said selectable docking port includes open outside edges to allow PDA's of differing widths to dock with said hand-held housing unit.
13. The apparatus of claim 1 wherein said user input/output unit comprises a cellular telephone.
14. The apparatus of claim 1 wherein said user input/output unit comprises a keypad device for entering at least text and numbers when said keypad device is docked to said PDA.
15. The apparatus of claim 1 wherein said user input/output unit comprises:
 - a cellular telephone; and
 - a keypad device for entering at least text and numbers when said keypad device is docked to said PDA.

16. The apparatus of claim 1 wherein said at least one standalone input/output function comprises at least one function of the group consisting of key-code data entry, bar code scanning, RF identification, transferring data to a PC, capturing image data, voice or data communications, transferring data via a local area network (LAN), and transferring data via a wide area network (WAN)
17. The apparatus of claim 1 wherein said enhanced input/output functionality comprises at least one function of the group consisting of data management, order entry, price verification, contact data base management, and data processing.
18. A method to provide user input/output capability, said method comprising:
 - docking a portable off-the-shelf personal digital assistant (PDA) to a portable user input/output unit, wherein said input/output unit includes a selectable docking port capable of docking to at least two differing portable off-the-shelf PDA's, one at a time; and
 - electronically interfacing said PDA to said user input/output unit as a result of said docking to form an enhanced user input/output device.
19. The method of claim 18 further comprising un-docking said PDA from said user input/output unit to provide an un-enhanced user input/output capability via said user input/output unit.
20. The method of claim 19 wherein said user input/output unit comprises a hand-held data entry housing unit that provides data entry functionality when undocked from said PDA.
21. The method of claim 19 wherein said user input/output unit comprises a cellular telephone that fully functions as a cellular telephone when undocked from said PDA.

22. The method of claim 19 further comprising performing bar code scanning with said user input/output unit.
23. The method of claim 19 further comprising performing radio frequency identification with said user input/output unit.
24. The method of claim 19 further comprising performing key entry with said user input/output unit.
25. The method of claim 19 further comprising connecting to a local area network (LAN) via said user input/output unit.
26. The method of claim 19 further comprising connecting to a wide area network (WAN) via said user input/output unit.
27. The method of claim 19 further comprising connecting to a personal computer (PC) via said user input/output unit.
28. The method of claim 21 further comprising docking said cellular telephone to a front face of said PDA to serve as a lid for said PDA to protect said front face of said PDA, and wherein said cellular telephone still functions as a cellular telephone when docked to said PDA.
29. The method of claim 21 further comprising docking said cellular telephone to a front face of said PDA to serve as a keypad input to said PDA, allowing a display of said PDA to be viewed while said cellular telephone is docked to said PDA.
30. The method of claim 18 wherein said enhanced user input/output device provides enhanced functionality comprising at least one function of the group consisting of data management, order entry, price verification, contact data base management, and data processing.